

What is claimed is:

1. A VCT mechanism for adjusting and maintaining an angular relationship between a cam shaft and a crank shaft or another shaft using a pressurized fluid, the VCT mechanism having a phaser using the pressurized fluid for adjusting and maintaining the angular relationship, the pressurized fluid flows from a fluid source to a fluid sink, the VCT mechanism comprising:

a locking pin being disposed to engage a recess, wherein the pressurized fluid is allowed to flow therein, to thereby disengage the locking pin from the recess;

a spool valve controlling the flow of the pressurized fluid for adjusting and maintaining the angular relationship, and an extra land disposed to control the timing of the pressurized fluid flowing from the fluid source toward the recess and from the recess toward the fluid sink; and

a set of passages disposed to have fluid flowing therein, the set of passages including:

a first passage disposed to have fluid flowing therein, the first passage having a first end disposed to be in fluid communication with the fluid source and a second end;

a second passage disposed to have fluid flowing therein, the second passage having a first end disposed to be in fluid communication with the second end of the first passage, the second passage further having a second end in fluid communication with the recess; and

a third passage disposed to have fluid flowing therein, the third passage having a first end disposed to be in fluid communication with the first end of the second passage, the

27 third passage further having a second end in fluid
28 communication with the fluid sink.

1 2. The VCT mechanism of claim 1, wherein the spool valve is disposed to
2 control the fluid communication between the first end of the second
3 passage and the second end of the first passage.

1 3. The VCT mechanism of claim 1, wherein the spool valve is disposed to
2 control the fluid communication between the first end of the second
3 passage and the first end of the third passage.

1 4. The VCT mechanism of claim 1, wherein the spool valve is a center
2 mounted spool valve disposed to be within the phaser.

1 5. The VCT mechanism of claim 1, wherein the another shaft is a cam or
2 crank shaft.

1 6. The VCT mechanism of claim 1, wherein the set of passages are
2 disposed to be in fluid communication with an advance chamber
3 and a retard chamber of the phaser.

1 7. The VCT mechanism of claim 1, wherein the VCT mechanism is a CTA
2 VCT system.